

SUPPORT FOR THE AMENDMENTS

This Amendment amends the specification; amends Claims 23 and 39; and adds new Claims 44-45. Support for the amendments is found in the specification and claims as originally filed. The amendment to the specification at page 73 is to correct a typographical error. The amendment is supported by the specification at page 72, line 21 to page 73, line 7 and Fig. 11. Namely, the cutting face of the openings provided in the tank body of Example 11 were not covered with aluminum adhesive tape, whereas the cutting face of the openings provided in the tank body of the control tank described on page 73 was covered for comparison of the fuel permeation. Claim 39 is amended to correct a typographical error. Support for new Claim 44 is found in Figs. 7-8. Support for new Claim 45 is found in Figs. 9-13. No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 17-45 will be pending in this application. Claims 17 and 28 are independent.

REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

Conventionally, a fuel container has a multilayered structure that includes an inner layer, an outer layer and an intermediate layer with gasoline barrier properties (i.e., a barrier layer). The fuel container is provided with openings for mounting various components such as an inlet or outlet neck, a connector, and a cap. The components are preferably made of a barrier material for suppressing fuel permeation. However, the present inventors have discovered that when a component made of a barrier material such as EVOH is employed, the expected barrier properties are not obtained.

The present inventors were the first to discover that the fuel in the container vaporizes (permeates) from the portions where the components are attached. The specification at Fig. 5 shows such fuel permeation. Fig. 5 shows a fuel container made of a multilayered structure including a barrier layer 1 and thermoplastic resin layers 2 and 3, in which a component 6 is attached to an opening of its body. At this opening portion, fuel can evaporate and pass through the layers that are located on the outside with respect to the barrier layer 1 (in this case, the outer layer 3 made of a thermoplastic resin (B) and an adhesive layer 10) easily. See specification at page 11, line 15 to page 12, line 19.

The present inventors were the first to realize that the permeation of fuel through the portions where components are attached is a serious problem.

The fuel containers featured in independent Claims 17 and 28 each has a layered structure comprising at least a barrier layer made of a barrier resin (A), and an outer layer made of a thermoplastic resin (B) that is different from the barrier resin (A).

In independent Claim 17, the fuel container is provided with an opening through its body, wherein a cutting face of a layer at the opening is covered by a barrier member made of a barrier material (C), and wherein the layer covered by the barrier member is located on the outside with respect to the barrier layer. This feature is shown by Figs. 7 and 8.

In independent Claim 28, the fuel container is provided with an opening; a cut-out or a groove is provided at an outer surface of the fuel container around the opening; and the cut-out or the groove is covered or filled with a barrier member made of a barrier material (C). This feature is shown by Figs. 9-13.

According the present invention, fuel permeation at the peripheral portion of the opening (i.e., fuel permeation through the cutting face of the layer that is located on the outside with respect to the barrier resin (A)) is prevented, so that the fuel container of the present invention has high barrier properties with respect to the fuel.

Claims 17-43 are rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,547,096

("Kleyn") in view of U.S. Patent No. 6,033,749 ("Hata").

Kleyn discloses an electroplated, polymeric fuel cell fabricated of inner and outer shells. The outer shell is an assembly of outer shell halves joined together along peripheral flanges. Kleyn at Abstract, lines 1-3. A layer of copper, a layer of nickel, and a layer of chrome are successively electroplated to either or both of the interior and exterior surfaces of the outer shell halves to prevent permeation of fuel through the shell. Kleyn at Abstract, lines 3-7; column 1, lines 53-61. Thus, Kleyn recognizes that fuel permeation occurs through the body of the fuel container, but fails to recognize that fuel permeation occurs at the peripheral portion of an opening through the fuel container (i.e., fuel permeation through the cutting face of the outer shell).

Kleyn discloses inner shell 12 includes a filler neck 82 and an outlet neck 84 which pass through to apertures 30, 32 in outer shell 14. Enclosure gaskets 34, 36 are sufficiently compressed between outer shell 14 and necks 82, 84 to provide a leak tight seal. Kleyn at column 3, lines 1-12. Instead of providing enclosure gaskets 34, 36 to prevent the permeation of vaporized fuel at the peripheral portion of apertures 30,32 (i.e., fuel permeation through the cutting face of the outer shell 14), Kleyn provides the enclosure gaskets 34, 36 to prevent the leakage of absorbent material filled in a space defined by the inner shell 12 and the outer shell 14. The polymer forming inner shell 12 and necks 82, 84 has poor gas barrier properties. Thus, necks 82, 84, which extend through outer shell 14, have poor gas barrier properties.

The Office Action admits that Kleyn does not disclose an interior barrier layer. Office Action at page 2, section 2 line 12.

Hata discloses a fuel tank comprises (a) inner and outer layers of high-density polyethylene, (b) intermediate layers of adhesive resin, and (c) a core layer of ethylene-vinyl

alcohol copolymer, with said core layer (c) being shifted to the inside. Hata at Abstract. However, Hata fails to disclose or suggest the permeation of fuel at the peripheral portion of a fuel tank opening (i.e., fuel permeation through the cutting face of the layer that is located on the outside with respect to the barrier resin). Therefore, those skilled in the art would not be motivated to combine Hata and Kleyn in order to obtain the fuel container of Claim 17, in which the cutting face of a layer at the opening is covered by a barrier member. Furthermore, if Hata and Kleyn are combined, the fuel container of Claim 17 would not have been obtained.

Kleyn in view of Hata also fails to suggest the independent Claim 28 limitation that "the fuel container is provided with an opening, a *cut-out* or a *groove* is provided at an outer surface of the fuel container around the opening, and the *cut-out* or the *groove* is covered or filled with a *barrier member* made of a barrier material (C)".

Thus, the rejection under 35 U.S.C. § 103(a) should be withdrawn.

New Claims 44-45 are further patentably distinguishable over the cited prior art. As discussed above, Kleyn discloses inner shell 12 includes a filler neck 82 and an outlet neck 84 which pass through to apertures 30, 32 in outer shell 14. Enclosure gaskets 34, 36 are sufficiently compressed between outer shell 14 and necks 82, 84 to provide a leak tight seal. Kleyn at column 3, lines 1-12. However, the cited prior art fails to suggest that enclosure gaskets 34, 36 be directly exposed to the space inside apertures 30, 32. Thus, the cited prior art fails to suggest the Claim 44 limitation that "the barrier member is exposed to the opening space, or the barrier member and the barrier layer are exposed to the opening space" or the Claim 45 limitation that "the barrier layer is exposed to the opening space". Thus, new Claims 44-45 are further patentably distinguishable over the cited prior art.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything is further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon


Corwin P. Umbach
Corwin P. Umbach, Ph.D.
Registration No. 40,211

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 03/06)